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DDI # 3203-77

7 October 1977

MEMORANDUM FOR: Director of Central Intelligence
VIA : Deputy Director for Intelligence
VIA : Legislative Counsel
SUBJECT : Release of Unclassified JEC Testimony

23 June Proxmire/J.E.C. on Soviet Economy

1. Action Requested: Approval to release sanitized testimony.

2. Background: Attached is the sanitized testimony of the Joint Economic Committee hearing on June 23. We had agreed with Senator Proxmire to do three things:

--To permit him to release the paper on the Soviet economy; *done*.

--To provide him with a summary of the Director's statement which could be released to the public; and, *done* *V*

--To sanitize the full testimony. —

This is step number three.

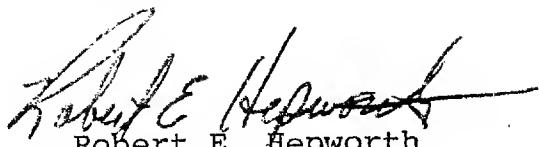
Please note (at tab) that we are providing some unclassified data on the Soviet civil defense program. It has been gone over carefully and provides no information on the precise extent of the program nor on sources and methods.

3. Staff Position: The text has been examined by OER and OSR. Sensitive matters were deleted; corrections and updates were made where necessary.

Only took me 8 months EXECUTIVE REGISTRY FILE B-7

SUBJECT: Release of Unclassified JEC Testimony

4. Recommendation: I recommend this be released to the Committee for publication by the GPO.


Robert E. Hepworth
Chief, Congressional Support Staff, DDI

Attachment: as stated

Remarks:

4 to 5: Release of the material on the Soviet civil defense program could solve the problem of publication of a paper on this subject, especially in view of the attention given the classified report by the press. It may raise questions or coordination with State and others however.

George Cary

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| FROM: NAME, ADDRESS AND PHONE NO. | DATE | |
| Robert E. Hepworth Chief, Congressional Support Staff | 7F30 Hqs x5908 | 70ct77 |
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Joint Economic Committee,
Subcommittee on Priorities
and Economy in Government,
Washington, D.C.

Thursday, June 23, 1977
(10:06 a.m.)

CIA Briefing

Soviet and Chinese Economies

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Approved For Release 2004/03/11 : CIA-RDP80M00165A000500140002-3

CIA BRIEFING

SOVIET AND CHINESE ECONOMIES

Thursday, June 23, 1977

Joint Economic Committee
Subcommittee on Priorities
and Economy in Government,
Washington, D.C.

The Subcommittee met, pursuant to notice, at 10:06 a.m.,
in Room 6206, Dirksen Senate Office Building, the Honorable
William Proxmire (Chairman of the Subcommittee) presiding.

Present: Senators Proxmire (presiding), Hatch, Sparkman,
Javits, Roth, and McClure.

Also present, Richard F. Kaufman, General Counsel, and
George D. Krumbhaar, Jr., Minority Economist.

Also present from the Central Intelligence Agency:
Admiral Stansfield Turner, Director of Central Intelligence;
Dr. Sayre Stevens, Deputy Director for Intelligence; Robert
E. Hepworth, Congressional Support Staff; Douglas Diamond,
Office of Economic Research; Robert Field, Office of Economic
Research; Donald Burton, Office of Strategic Research; George
L. Cary, Legislative Counsel; and Bernard McMahon, Executive
Assistant to Admiral Turner.

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Senator Proxmire. The Subcommittee will come to order.

Admiral Turner, we are very pleased that you are with us this morning to make what has become an annual presentation of the intelligence community's views of the allocation of resources in the Soviet Union and China.

As you know, we are anxious to have a full discussion of the substantive issues so that we might better understand economic developments in the two largest communist countries. We are also anxious to make this information available to the rest of Congress and the public as quickly as possible.

In the past, we have tried to publish the proceedings as soon after the transcripts have been sanitized as we could. We have done this, but it has taken several months from the date of the initial presentation.

This year, in addition to publishing the full hearings, we would like to be able to make public the dialogue between you and the committee, and perhaps also a summary of the presentation. Of course, these excerpts would have to be declassified.

Do you think this can be done so that we can make public at least portions of this hearing within the next two or three weeks?

Admiral Turner. Yes, sir.

Senator Proxmire. Very good. That would be very helpful.

Senator Hatch, do you have a statement?

Senator Hatch. I have no statement. I am just very happy to welcome you here, Admiral.

Admiral Turner. Thank you, Senator.

Senator Proxmire. Thank you, Senator Hatch. We are delighted to have you here this morning.

Let's proceed with your remarks, Admiral, and then we will get into our questions.

STATEMENT OF ADMIRAL STANSFIELD TURNER,

DIRECTOR OF CENTRAL INTELLIGENCE

Admiral Turner. Thank you, Mr. Chairman.

I am pleased to be here. I understand that the CIA has been coming up here for several years to give this kind of assessment and providing the Committee with economic studies for 15 years. In addition, we have and will continue to provide you with reports from time to time, as they become available. As I mentioned to you personally, I feel that is a responsibility which we should continue and we should increase the amount of information that is made available to the public.

We would like this morning to discuss the Soviet economy and its prospects along with the defense sector. We will proceed from there to the Chinese economy and its defense sector.

I will be assisted by Dr. Sayre Stevens on my right, who is the Deputy Director for Intelligence at the Central Intelligence Agency.

(Slide GNP Growth)

Admiral Turner. Our review of the Soviet economy is a particularly significant one for this year because we have taken a look at the long-term prospects. It has been about five years since we have taken this kind of perspective, and we have come up with what I think are some important and different conclusions about the Soviet economy and its long-term outlook.

We have studied this and restudied it. We have called in outside economic experts and we think we are on the right track. We will be interested in your responses this morning, sir.

We think the Soviet Union is entering into a period of reduced growth potential, due first to bottlenecks in key commodities, especially crude oil, but also to a near certain contraction in the growth of their supply of labor.

The basic problem is that the formula for maintaining their level of growth over the past 25 years, which has been to increase the inputs of labor and capital to make up for the inefficiency in the way they utilize them, does not appear to us to have long-term prospects. They are not going to be able to continue to do this over the next ten years or so.

Up to 30 percent of their Gross National Product currently goes into capital investment.

As a result, we think Moscow is going to be confronted with some very difficult policy decisions, especially involving energy use, imports from the West, relations with Eastern Europe, and the size of their armed forces.

We think their policy options are limited, and we also note that the responses which they are going to have to make are likely to be complicated by the fact that when all these economic problems come to the fore, they well may be facing a change in political leadership and all of the uncertainties of a post-Brezhnev era.

Admiral Turner. Let me now go on in some greater detail as to why I anticipate this slow-down in Soviet economic growth.

I would start by saying that first, things have not been going well for the Soviet economy recently.

As shown on the left, GNP growth has been declining, from an average of about 5 percent in the 1960's to about 3.7 percent in this decade.

In 1976, industrial growth, as shown on the center bar there, was the slowest since World War II.

Finally, on the agricultural side, you can see what a bad five years they had before 1976. It was in 1976 that they really had a good year.

(Slide--Working Age Population)

The second factor working against them in the long run which I mentioned previously is the expected sharp drop in the rate of growth of the labor force, beginning in the late 1970's. This derives from a decline in the birthrate in the 1960's. It has already been reflected in a decline in the number of new entrants into the labor force, but, as this graph shows, it will become much more acute by the early 1980's.

The working age population by then will grow less than 1/2 percent annually, compared with about 1.8 percent during the 1970's to date.

A further complication is that those additions which will be taking place to the labor force during this period will come largely from the ethnic minorities from Central Asia, who do not readily move to the labor short northern industrial areas. They are not people who want to be displaced.

(Slide--Average Annual Rate of Growth in GNP)

Admiral Turner. Productivity gains in the Soviet Union have been slowing for years, and in addition, there are new problems today which are likely to depress productivity further.

The left-hand series of bars here are the Gross National Product that we saw before, but added to it is the Soviet projection in their five year plan of a 5 percent growth over the next five years.

The interesting point is that the middle bars show the rate of growth of the inputs of capital and labor combined and you can see that they themselves predict a drop in the rate of growth in their five year program. Yet, the last bars, which show the combined productivity of these factors, indicate that they expect an unrealistic increase in productivity.

In short, even allowing for the fact that 1971-1975 included some bad agricultural years, what they are expecting over the next five years is more than they achieved even in the 1950's. We don't think they are likely to be able to achieve this productivity with those inputs of labor and capital.

Let me elaborate on some of the reasons for that.

The first is that the fuels and raw materials which they are going to have to draw upon in the next decade are simply getting more expensive. They have to go further east of the Urals to get them.

Another is that the Soviet economy is simply becoming larger and more complex and the mechanisms which they have for centralized control of it are becoming less and less adequate to the task.

Third is that in adding to plant and equipment, they have to move into more technologically sophisticated areas and it is more expensive to do so.

Perhaps most importantly is the looming oil shortages, which, as you know, we have discussed in another report which we sent out on an unclassified basis not too long ago.

If I may, I would like to elaborate on that because it is central to our overall analysis here.

(Slide --- Soviet Oil Production)

Admiral Turner. This is our prediction of Soviet crude oil production which, as you can see, is on a steep rise at this point. We expect it to peak in the early 1980's and then to decline.

The reasons for this are first that the Soviets today are emphasizing current production, rather than development and exploration. They are not discovering new oil reserves as rapidly as they are depleting them.

Secondly, while last year they produced 10.4 million barrels of oil per day--and we think this is close to their estimated maximum potential of 11 million to 12 million barrels a day--we still expect that they are going to fall to between 8 and 10 million b/d by 1985, in large measure because the production technique that is keeping their production high today is a water flooding method which pushes the oil out, and that, over time, simply leads to seepage with the end result that a very large amount of fluid has to be pumped out to get a given amount of oil.

Senator Hatch. Admiral, that is still quite a bit of oil per day, though, isn't it?

Admiral Turner. Yes.

Senator Hatch. Isn't that a little bit more than ours? How many million barrels of oil a day do we get?

Admiral Turner. We consume about 18 million barrels of oil a day.

Senator Hatch. But we produce about 8 million of those, don't we?

Dr. Stevens. We produce about 8 million.

Senator Hatch. So actually, we are producing less oil today than the Russians with our much more highly mechanized society.

Admiral Turner. There is no question about that.

Senator Hatch. Thank you. I just wanted to get that comparison so that I would have the right perspective.

Admiral Turner. In 1976, the Soviets were the largest oil producer in the world in millions of barrels of oil per day, slightly more than the Saudi Arabians.

Senator Hatch. I don't think a lot of people realize that.

By 1985, you expect them to be down to about 8 million barrels of oil a day?

Admiral Turner. 8 million to 10 million by 1985, and I will detail why I think that is going to have some severe impact on them, even though it is nonetheless a large amount of oil.

Senator Hatch. Are they getting most of their oil east of the Urals?

Admiral Turner. They are getting most of their oil west of the Urals. They are still tapping those fields, and also a very giant field east of the Urals called Samotlor in Western Siberia.

They are still tapping the Urals-Volga area but it is running down, and they are having to move progressively further east.

The giant Samotlor field we think will peak in about a year or two, largely because of the use of water flooding. They will have to go to either off-shore areas in the north

or further out into Siberia, or hope to find extensive new fields in the Samotlor region. But even in the Samotlor area, they are in an inhospitable climate, and transportation problems are going to grow as they move north and east.

Senator Hatch. How much of this oil do they use per day?

Admiral Turner. They exported nearly 3 million barrels a day in 1976.

Senator Hatch. Do they utilize the rest or do they conserve and save it?

Mr. Diamond. No. They are utilizing everything else.

Admiral Turner. An interesting aspect of this is that as they use more and more water flooding, they get more and more water out per barrel of oil. They are very dependent upon high-speed, high-capacity submersible pumps, which at this time they obtain only from the United States.

Now in the mid-1980s, they will surely look at ways to find alternative energy sources: coal, water power, gas, and so on. But again, most of these resources lie east of the Urals and it is going to take heavy capital investment and high transportation costs to exploit those.

Senator Proxmire. What you said is that all of this oil is being used by the communist nations, by the Soviet Union and the Communist Bloc nations.

Admiral Turner. No. All but about 1.3 million barrels a day.

Senator Proxmire. You said that they export about 3 million barrels a day in 1976, of which about 1 million went to Communist countries. Where does the rest of it go?

Mr. Diamond. About 300,000 barrels a day goes to soft currency noncommunist countries, and the balance of 1 million barrels a day goes to the hard currency western countries.

Senator Proxmire. So, that would mean, if they are going to have the same amount of oil go to Communist Bloc countries, they would simply be unable to have the exchange they would need to buy from the West.

They would not be able to meet their growth with additional oil, the growth which you projected they would have. In other words, you cannot say that they could get along with the amount of oil that they have now if that is their only energy source because they are growing, as you said. The other communist countries are also growing, so they would need more to take care of the needs of Russia and the needs of her satellite countries, and they won't have that additional means.

Admiral Turner. That is correct. We have projected in our energy study that for 1976-80 there will be about 3.5 to 4 percent annual increase in oil demand in the Soviet Union. That, plus continuing to supply the Eastern Europeans, who expect not the 1.4 million they got in 1976 but 1.6 million b/d

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by 1980, is going to tax them, let alone their being able to sell this other million barrels a day, which currently brings them about \$4.5 billion of foreign exchange every year.

So, what I am getting to is that they are going to be pressed either to meet their own domestic requirements for a growing economy, or to supply the Eastern Europeans as projected, or to get the hard currency exchange to buy technology and other goods from the West.

They have a crunch in one of those three areas. We don't know how to predict which way they will respond to those crunches, but we think each one has a very interesting and significant aspect, not only from the Soviet point of view, but from ours and that of the entire Western World.

Senator Hatch. I don't mean to keep interrupting you, but the water flooding approach that you have indicated really results in leaving a lot of the oil in the ground.

Admiral Turner. Yes.

Senator Hatch. Are they coming up with sophisticated means of secondary recovery of oil over there?

Admiral Turner. They are talking about new means of secondary and tertiary recovery.

Senator Hatch. Are we cooperating in helping them to create secondary recovery measures?

Admiral Turner. There are several technical agreements between the Soviets and US oil firms for cooperation in enhanced recovery operations.

Mr. Diamond. We are selling them a lot of equipment. This fall they are planning to sign contracts for US equipment to start a gas lift operation. Instead of using water they will use gas pressure to recover oil. In October contracts may be signed for \$1 billion worth of US gas lift equipment. Unless they get access to that and to 1,000 submersible pumps for lifting fluid in other fields, we feel they won't be able to obtain the results shown in that production chart you saw earlier; we feel they will not be able to work out that scenario. We feel that as a minimum, they have to have access to US technology of this kind.

Senator Hatch. I see. Have they tried nuclear methodology over there, to your knowledge?

We tried it out in Colorado and it did not work very well. I was wondering if they tried it with any success.

Mr. Diamond. The Soviets used nuclear detonation to improve oil yields at a field in the Urals-Volga region in the early 1970's. Some success was claimed.

Senator Hatch. Okay.

Again, I am sorry to hold you up on this, but I think these are important questions.

Have they made any great strides in alternative forms of energy, such as fusion, nuclear fusion?

Dr. Stevens. They have been very active in the development of a fusion program, but it is all very definitely in the development stage--really, in the research stages.

Senator Hatch. So, they have not brought anything through to fruition, but they are working hard, just as we are, in this area?

Dr. Stevens. Right.

Senator Hatch. There are no advantages to them in the alternative energy systems?

Mr. Diamond. Not between now and the mid 1980's. We anticipate that by 1985, 2 percent of their total energy will come from nuclear sources.

Senator Hatch. Are they going ahead with their forms of breeder reactors?

Admiral Turner. Yes, they are.

Senator Hatch. They will definitely be able to capture that intensification of nuclear energy through the breeder system that we are now apparently phasing out, or phasing down.

Dr. Stevens. They have a small breeder reactor. They are preparing to build a large one, but they are still in the stage of trying to investigate it.

Senator Hatch. They are not as far along as we are in it?

Dr. Stevens. Oh, no, they are ahead of us.

Senator Hatch. They are ahead of us in breeders?

Dr. Stevens. Yes sir, they are ahead of us in breeder technology.

Senator Hatch. So, you are saying that at their peak, they hit 12 million barrels a day, and that is less than what they really need if they are going to continue to service the Eastern Bloc countries. They may have to pull back the other 1,300,000 barrels a day from the West, is that it?

Admiral Turner. (Nods affirmatively.)

Mr. Diamond. 1,000,000 barrels to hard currency countries, and 300,000 to soft currency countries. They will pull that back.

Senator Hatch. But that will still not solve their problems by the mid-1980's, will it?

Admiral Turner. No, and it will create other problems for them.

Senator Hatch. Oh, sure.

Admiral Turner. These will be of considerable importance.

Senator Hatch. It means that they will have to have a terrific capital outlay to keep their industrial economy going by getting oil from either the Middle East or elsewhere, or they are going to have to put pressure on to acquire oil clandestinely.

Admiral Turner. Yes. We have observed in their country as in most others, that the rate of economic growth is roughly parallel to the rate of energy consumption growth. They face this prospect. We feel that they do not have the opportunities that the United States does to conserve energy. Most of their

vehicles are industrial/commercial vehicles.

Senator Hatch. So, what it really comes down to is the fact that the Middle East is going to be a hot center, irrespective of the Palestinian/Israeli/Arab various crises that already exist?

Admiral Turner. That is certainly true. There are lots of reasons for that in this energy sphere, too.

If the Soviets become a net importer of oil, which we think their demands will require--now we don't say that they will import oil, but we say that the combination of what we think they can produce--

Senator Hatch. If they want to grow, they are going to have to.

Admiral Turner. If they want to maintain a reasonable rate of growth and to service the Eastern Europeans, and to earn hard currency, yes. But, of course, if they are going to import oil, they will not be earning hard currency that they earn from exporting oil. They are in a real crunch here.

As I was about to say, we don't think they can conserve as readily as can we, or even the Western Europeans. They don't have as much automobile and vehicular consumption. They only use 3 percent of their oil today for household consumption.

Senator Hatch. So, this will deter modernization throughout Russia and will keep them still almost a primitive society--comparatively speaking, of course.

Admiral Turner. That is certainly one of the conclusions as to the possibility from this whole briefing, that is, that a slowdown in their economy is forthcoming and this will be reflected in a reduced rate of growth.

Senator Proxmire. Admiral, we do want to give you a chance to present your whole statement. Can you tell us how long it will take for you to present your whole position, both on Russia and China, if there are no interruptions?

Senator Hatch's questions have been excellent and very helpful. But I would like to know this so that we can time the hearing properly.

Admiral Turner. I would think there is about another 25 minutes of presentation, sir.

Senator Proxmire. All right. Suppose you go ahead with that, and then upon your conclusion we will each, in turn, question you. We need to get a view of the picture as a whole.

Senator Hatch. I would hope, Mr. Chairman, that we might be able to ask you a quick question if we have one.

Senator Proxmire. Of course, for purposes of clarification that would be fine.

Senator Hatch. Thank you.

Senator Proxmire. Go ahead, Admiral.

Admiral Turner. I think we have covered most of what I wanted to say on oil.

We think they would then have to look, because they cannot do a lot of conservation, at whether they cut oil exports to the Eastern Europeans, at whether there are other ways to find foreign exchange so that they can perhaps buy oil from outside. We think that they can do something to increase their foreign exchange from non-oil exports, but that probably will be only about a 10 percent a year increase as the maximum, and this would not be enough to avoid an overall reduction in their hard currency earnings.

We think they could increase their gold sales, because their production of gold is going up. On the other hand, they would meet a point of diminishing returns as the market price of gold will go down if they put too much on the market.

We think they could try to sell more high-cost, sophisticated armaments, as they have been doing. But here again we are talking about a 10 percent growth rate, which would not be a sizeable addition to their foreign exchange.

We think they are going to find it difficult to obtain oil from the Middle East by barter because they do not have that much to offer to people who have lots of hard currency available. Their goods are simply not that competitive. The Middle Eastern people would prefer to buy from the West in general.

The Eastern European question is going to be a big one for them, and Moscow is going to have to carefully weigh the

trade-offs of continued economic support to their satellites and their desire to use some of that oil for export for hard currency. They may ask the Eastern Europeans to share some of the burden of their oil shortage, but this, of course, would make the Eastern European economic situation more difficult than it is today, and would possibly threaten the stability of the linkage between those people and the Soviet Union.

I will move now from oil to agriculture and that aspect of the Soviet economy.

Agriculture will, we believe, continue to be a major headache for the Soviets. Soviet farm production has increased far above the level of a decade ago, but still cannot provide the quality diet that the Soviet population desires.

The demand for meat is rising faster than production, placing a severe strain on the Soviet grain-livestock economy.

Although much of the additional farm output reflects a massive infusion of investment and industrially produced goods, good luck with the weather has also been important. For the last decade or so we believe the Soviets have enjoyed above-average weather conditions in their main grain producing areas. According to the law of averages, they should have more below-average years sometime in the future.

But, even under favorable weather conditions, their imports of farm products have accelerated in recent years, and their program for dampening the sharp fluctuations in grain output by shifting production to lower risk weather areas has made farm products increasingly costly.

Well, if the weather does turn against them to what would be a more normal condition, we expect they will continue to have sizeable requirements for importing grain, in particular.

Looking at the overall economic forecast, we must take into account the uncertainty in the future trends of the policy options available to the Soviets. These are limited, but which ones they select will have an important effect on us as well as on themselves.

If they can avoid these serious energy bottlenecks about which we have been talking, they can probably achieve an overall economic growth rate of about 4 percent a year through 1980, and perhaps 3 percent during the first half of the 1980's.

To do this, there are several things that they may want and be able to do to try to maintain their growth rate near 3 1/2 to 4 percent.

(Slide--Annual Rate of Growth of Inputs to Economy)

Admiral Turner. This chart shows that the growth in sown acreage of the Soviet Union is going to remain about the same. We don't expect them to bring sizeable new land areas into

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production. The chart also shows that their growth in available man-hours, given the problem I mentioned before of declining inputs of labor, is going to decline.

The same holds true for the capital stock, and that means that the combined growth of total inputs of stock of plant and equipment and labor will decline.

The red lines indicate what they might do if they put in special measures. The bottom red line is what we call a manpower program. There are a number of actions which they could take. They could create additional incentives so that people do not retire as early. While current incentives exist for workers to stay on the job after reaching retirement age, only one quarter of them do. It would be possible to increase this number by raising financial incentives or by raising the relatively low retirement age.

They could also change their educational policy. They have a full secondary education program now and they could get people out into the labor market earlier by reducing the number who get a full secondary education.

And, of course, they could cut the armed forces if they felt it was mandatory to tap that sizeable pool of manpower.

We don't think that these measures could have more than a one-time effect, as we show here, to offset the decline in the additions to the labor force which we earlier described.

In investment programs, they have a number of options. The principal ones relate to the defense field. They could shift defense industrial capacity to production of investment goods. However, as we all know, defense production is what the Soviets do best, and they might be reluctant to forego that. Also, as we all know, resources that have been traditionally invested in defense are not as easily transferable to civilian sectors as are some others.

They could also in the investment program stretch out research and development and production schedules in defense oriented industries. They could also try to improve their overall productivity by reforms of economic management. But here, as we are all aware, the centralized bureaucracy has its interests and there are also political and ideological factors involved as to how far-reaching the reforms are they could make in the way they manage their economy.

What we are saying, then, is that in the middle line here, even with a good, tough manpower program and with as much effort as they can make to arrest the lower rate of growth of investments, the combination is not going to have, in our view, a substantial impact over the next decade.

Perhaps they could keep their economic rate of growth up to about 4 percent, as I suggested, but then it looks to us as though at best it is going to be below 4 percent.

On the other hand, if they do not take these corrective measures, particularly with respect to their oil program, their economic growth may drop even lower, to 3 1/2 percent in the near term and to 2-2 1/2 percent in the first half of the 1980's.

Let me emphasize that we are talking about average figures here. Performance in some years could be better or it could be worse.

(Slide--Ability to Absorb Imports)

Admiral Turner. These economic problems awaiting the Soviet Union in the 1980's will strongly affect its relations with us and with the entire Western World. Even under the most favorable assumptions we have displayed here for hard currency earnings, including cutting their exports to Eastern Europe, the Soviet Union will experience a hard currency squeeze in the early to mid-1980's.

This chart shows their ability under two estimates to continue the rate of non-grain hard currency imports at a ratio of Gross National Product that they are doing today. It shows that we think it will have to fall below the current ratio at some time in the future.

This may mean that the Soviet Union will turn to us in the next decade for substantial long-term credits, especially those needed to develop their oil and gas industries. They need US technology, as I have indicated, to develop those industries, and they may well need US credit with US Government guarantees to achieve that.

Finally, turning to the critical area of defense, a slowdown in economic growth is likely to trigger debate in Moscow over the future levels and patterns of military expenditures. Yet, as we all know, military programs have considerable momentum and powerful political and bureaucratic support.

We do expect defense spending to continue to increase during the next few years at something like the recent annual rates of 4 to 5 percent because of this built-in momentum. However, as the economy slows, ways to reduce growth of defense expenditures should become increasingly urgent to major elements of the Soviet leadership.

Internally, the reduced growth potential means that the Soviet consumer will fare poorly during the next five to ten years, relative to his gains under the current leadership. With the overall economic growth rates that we consider likely, per capita consumption could grow by no more than 2 to 2 1/2 percent a year, compared with about 3 percent since 1965.

As a result, we do not anticipate any closing of the gap in living standards with the West, or for that matter, even with Eastern Europe.

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We believe that on balance, consumer pressures will remain manageable nonetheless, although worker incentives may be adversely affected.

As Soviet leaders obtain a better perception of the resource problems ahead, they will be led to consider policies rejected in the past as too contentious or lacking in urgency.

Some might be persuaded that basic organizational and management reforms in industry are necessary, but that will raise the spectre that such reform would threaten political control.

Consideration of other options, such as accelerating investment at the expense of defense or consumption, or reducing the armed forces to enhance the civilian labor force, could also result in strong leadership disagreements.

In concluding, I would like to stress the vast uncertainty facing the Soviets and us as new leaders inevitably come forward in the 1980's to cope with these economic problems which we have been discussing.

We will be watching these developments closely and we stand ready to support you, Mr. Chairman, and your committee in any way we can in this area.

Now I would like to turn the floor over to Dr. Stevens to talk about Soviet defense costs, if you would like, sir.

Senator Proxmire. Very good. Go right ahead, Dr. Stevens.

Dr. Stevens. Thank you.

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As you know, the security that surrounds Soviet defense spending makes it very difficult for us to get very good figures on their spending.

Moscow announces only one statistic, which is a single line entry for defense, in the annual state budget. There has never really been a successful method for determining precisely what activities they are covering with this budgetary figure.

It serves a political purpose, and we have found it useless as an indicator of either the magnitude or the trend of defense spending in the Soviet Union.

For example, the announced budget cuts since 1972 are simply incompatible with the growth in Soviet forces that we have seen take place.

We estimate the costs of Soviet defense activities really by putting price tags on observed and estimated Soviet defense programs and then aggregating all of that information to determine total figures.

We estimate, first of all, the cost in rubles, so that we can measure the impact of defense on the Soviet economy as a whole. We can look at the economic considerations that affect Soviet defense planning, and finally, we can get an idea of the relative priorities that the Soviets assign to various defense activities and programs.

We also estimate the costs in dollars to provide a simple comparison between the Soviet programs and US defense program. Each year we completely review all of our data and we endeavor to improve the methodologies that we use and take into account any new information that we get in the course of the year so as to produce a new estimate.

First of all, I would like to review our current ruble estimate of Soviet defense spending. This is, of course, particularly important because it sizes the defense burden that the Soviets feel in their economy as a whole.

As you will recall, the ruble estimate we presented last year was substantially higher than our previous estimates. The reasons for this change and its significance have been widely misunderstood. We raised our estimate because we discovered that in the past we had underestimated the prices of Soviet defense goods. This was due primarily to lack of understanding of the price inflation in the USSR and a change in pricing policy that occurred in 1967, which led to the removal of what in the past had effectively been a subsidy on defense purchases.

The increase in our ruble estimates did not represent a change in our estimate of Soviet defense activities or Soviet military capabilities. It was really based upon these price discrepancies that we discovered.

Senator Proxmire. I hesitate to interrupt, but I think this is so important.

Are you saying that your estimate did not indicate a step-up in Soviet investment in resources in defense, but simply a reassessment of the prices, of the inflationary effect?

Dr. Stevens. The dramatic increase in the ruble costs of the Soviet program, as we estimated it, was due primarily to this change in pricing.

Senator Proxmire. So, it did not mean as much of an increase in resource allocation to defense as it seems?

Mr. Diamond. That's right.

Admiral Turner. The percentage of their Gross National Product going to defense increased in our estimate not because their defense programs are larger than we thought, but because the efficiency of the defense sector of their industry is much less than we had believed.

Senator Proxmire. I see.

Dr. Stevens. There was some growth in the hardware estimate, but it was small as compared to the change in the ruble estimate.

This change did carry with it some important intelligence judgments, and these, of course, are reflected in this pricing change that we have identified. The first, as Admiral Turner has pointed out, is that the Soviets are far less efficient at producing defense goods than we had previously estimated them to be. Of course, it is clear that the impact of the defense

program on the economy is greater than we had previously estimated it to be. All of this emphasizes the preparedness of the Soviet leadership to accept those burdens and it reflects their deep commitment to defense programs.

The work that we have done in the past year in making that change has strengthened our confidence in the revisions that we made. This year we find no big changes in either the overall magnitude of their program, as we see it in ruble terms, or in the trends that it is taking.

(Slide - Soviet Defense Spending in Rubles)

Dr. Stevens. This chart shows the ruble estimate for the years 1970-76. The blue band reflects our estimate in 1970 rubles with "defense" defined according to the U.S. definition of what activities are in a defense program. The width of the band represents the uncertainty that we have in making this estimate. The red band above it reflects how the Soviets might view their defense costs if they do not look at the defense program in precisely the same terms as we in the United States look at ours.

There are other costs, for example, a number of space costs, space program costs, which the Soviets might identify as being part of their defense programs.

As you can see, using a definition which encompasses a range of activities comparable to those in the U.S. defense

program, we estimate Soviet spending at some 40 to 45 billion rubles in 1970. By 1976, the total outlays for these purposes had grown to somewhere between 52 and 57 billion rubles. Using the broader definition, which I pointed out the Soviets might use, that amount has risen from 45-50 billion in 1970 between 57 and 62 billion rubles in 1976.

I should point out again that these estimates are calculated in terms of 1970 ruble prices. This use of a constant price base has a dual purpose. First, using this basis enables us to reflect only real changes in the level of Soviet military activities, rather than monetary changes which might result from price inflation.

Secondly, our estimates on the Soviet economy as a whole and our estimates of its economic performance are calculated on the same basis, that is, on the basis of constant 1970 prices. This enables us, then, to compare directly defense costs with other sectors of the Soviet economy.

No single measure adequately describes the economic impact of the Soviet defense effort. Defense spending, as a share of Gross National Product, can of course be used for this purpose.

Using the estimates that we have made, the Soviet defense effort absorbs some 11 to 12 percent of the Soviet GNP. If you were to base this on the broader definition of the defense program, that share would rise to somewhere between 12 and 13 percent.

Because the rate of growth in defense spending and in GNP were roughly the same during 1970 to 1976, there was little change over period in the share taken by defense.

The percentage of machinery output allocated to defense is another economic aggregate of some importance. You can use that to describe the impact of defense programs on the economy as a whole. Soviet defense takes about a third of the output of the machine-building and metal-working sector, and this, of course, is the sector which produces investment goods as well as military weapons.

A comparable figure in the United States in the post-Vietnam period is about 10 percent. So, as you can see, there is a significant difference.

The defense bite is also large in metallurgy, where it takes about one-fifth, in chemicals, where it is about one-sixth, and in energy, where it also consumes about one-sixth of the total in those areas.

Even these measurements tend to understate the impact on the Soviet economy because they fail to take into account qualitative considerations. Most importantly, defense takes the lion's share of the high-grade scientific, technical, and managerial talent that exists in the Soviet Union. It similarly draws heavily on the output of scarce and high quality materials, components, and equipment that are produced in the Soviet Union.

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As Admiral Turner mentioned earlier, we expect the long term growth in defense spending to continue into the 1980s at an annual rate of about 4 to 5 percent. Programs for the next generation weapon systems are now under development. These new weapons will be more complex and more costly, and we simply do not see any indications that the Soviets are dismantling their defense research and development or industrial capacity to divert it to other issues. The Soviets, of course, have made a tremendous commitment to the development and to the maintenance of these capabilities.

Let me now turn to the dollar estimates, for a more direct comparison with our defense program.

Our estimates of the Soviet program in dollar cost terms are intended to provide a general appreciation of the magnitude of the program and the activities. We developed these estimates on the basis of what it would cost in the United States to develop, procure, man, and operate a military force of the same size and with the same inventory of weapons as that fielded by the Soviets.

We also incorporated what it would cost to operate that force as the Soviets operate it.

The dollar costs that I am about to describe are expressed in 1975 prices. A constant price is again used so that real changes in military forces are not masked by inflation.

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This year, for the first time, our figures on U.S. spendings are in outlay terms, rather than in Total Obligational Authority. Because we have priced the Soviet defense program effectively in outlay terms, we are getting a better comparison by making that change.

Our indicators of the relative levels of U.S. and Soviet defense activities present basically the same picture which we have described to this committee in the past.

(Slide - Dollar Cost Comparison-Total)

Dr. Stevens. As you can see from the chart, this is a dollar cost comparison for the 1966-1976 period as a whole. It is not shown on this chart, but the total costs of the two programs in dollar terms through this period are roughly equal.

The estimated dollar costs of Soviet defense activities grew steadily over the period at an average rate of about 3 percent, while U.S. outlays declined after 1968 and from 1972 on are lower than they were in 1966.

As a result, the estimated dollar costs of Soviet defense activities exceeds the U.S. by a widening margin in every year after 1971, and by 1976, as you can see, they are about 40 percent higher.

If we add the costs of military retirement programs to both these estimates, the Soviets still exceed the U.S. by about 30 percent.

Finally, if costs for military personnel are subtracted from the basic estimates on both sides, then the estimated costs for the Soviet program are nearly 30 percent higher than in the United States.

(Slide - Soviet-US Investment & Operating Costs)

Dr. Stevens. For 1976, the estimated dollar costs of Soviet programs exceed U.S. defense outlays in all major categories.

In the case of investment, which includes procurement of new weapons, equipment, spare parts, and construction of facilities, you can see that the Soviet figure is about twice that of the United States in 1976. This, of course, reflects the steady buildup of the Soviet forces over the entire period, and the even sharper decline in U.S. investment after the peak of the Vietnam buildup in 1968.

The estimated dollar cost of operating a force is almost 15 percent higher in the Soviet case than for the U.S. In the area of personnel, the larger component of operating costs, the estimate for Soviet programs exceeds the U.S. by more than 60 percent, reflecting the large Soviet manpower base.

In 1976, although Soviet military manpower levels are about twice those of the U.S., the dollar costs of their personnel are only 60 percent greater. A major reason for this apparent anomaly is the significantly different structures of the two forces.

We have, as well, a good deal of information on military activities according to the mission that they are designed to fulfill. Because of the detail involved in that, I would propose to submit that for the record, if that is agreeable to the committee.

Senator Proxmire. Yes, without objection.

(The information referred to follows:)

COMMITTEE INSERT

PART II: Soviet Defense Costs

(Slide - Dollar Costs by Mission)

Another way to compare costs of military activities is by the mission they are designed to support. The mission definitions in this report accord with the guidelines outlined in the Department of Defense's Planning and Programming Categories (DPPC).

Strategic forces include all those forces assigned to intercontinental and peripheral attack, strategic defense, and strategic command, control, and warning. Over the 1966-1976 period, the level of Soviet activity for strategic forces measured in dollars has been nearly two and one-half times greater than that of the US. In 1976, the Soviet level is over three and one-half times that of the US.

Intercontinental attack forces include ICBMs, submarine launched ballistic missiles, and bomber aircraft. Over the

1966-1976 period as a whole, the level of Soviet activity as measured in dollars is 50 percent greater than that of the US. In 1976, it is over 100 percent greater.

Within the respective intercontinental attack forces, the relative activity levels are mixed. The Soviets' emphasis has been on ICBMs and SLBMs. The estimated dollar cost of Soviet ICBM programs over the entire period is almost 4 times cumulative US spending and over 6 times the US level in 1976. For SLBMs, the Soviets lead by 1.5 in both time frames. In contrast, in relative terms the US has emphasized its bomber forces. Over the 1966-1976 period, US spending on intercontinental bombers has exceeded dollar cost of Soviet activities by 300 percent and for 1976 by almost 200 percent.

(Slide--Dollar Costs: General Purpose Forces)

General purpose forces include all ground tactical air, naval, and mobility forces (airlift and sealift). Over the 1966-76 period, cumulative US outlays for general purpose forces exceed estimated dollar costs of Soviet activities by about 10 percent. Since 1971, however, the Soviet level is larger than that of the US and is one-third greater in 1976.

Within both the US and Soviet general purpose forces, land forces take the largest share of the costs. Outlays for US land forces decrease after 1968, however, while the estimated dollar costs of Soviet activity increase steadily. In 1976, the

Soviet level of activity for these forces, measured in dollar terms, is about 90 percent greater than that of the US.

The second largest share of general purpose forces, in terms of dollar costs, is for what is classified as General Purpose naval forces (not including carriers of SSBNs). The costs of these forces remain relatively constant for both countries over the period. In 1976 estimated dollar costs of Soviet activities are about 20 percent higher than US outlays.

The US outlays for tactical air forces (including naval attack carriers) are greater than the estimated dollar costs of comparable Soviet forces. Soviet activities are increasing, however, while US outlays have been decreasing since 1968. US outlays in 1976 are about 20 percent greater than dollar costs of the Soviet forces.

Dr. Stevens. As you have indicated in past years in our discussions of costing these military programs, our use of dollar cost comparisons do have a systematic bias favoring the Soviets. This bias reflects what economists term the index number problem.

Different countries use more resources and mix them in a fashion that will reduce the costs overall. In other words, they tailor their programs to take advantage of the relatively cheap resources and capabilities of their countries.

So, a bilateral comparison drawn in terms of the prices of one country produces a bias of a sort. THIS

of course, is common to all international comparisons of economic activities.

In order to look at the extent of this problem we have made some rough calculations of the ruble value of the US program. There are some real difficulties in doing this.

We have little direct information with regard to estimated Soviet costs of producing US military equipment. Rough ruble cost estimates are derived by applying a few highly aggregative ruble-dollar ratios to the US expenditure data.

We also had problems converting US cost categories as "contingency funds" and "other" into rubles.

These problems are complicated by the fact that whereas in the United States we had the technological capability to produce almost all types of Soviet equipment, there is some US equipment that the Soviets do not have the technology to produce. In such cases we follow accepted economic procedures by using the dollar-to-ruble conversion rate applicable to the closest substitute goods producable in both countries.

Our tentative calculation suggested the comparison in rubles is not radically different from that in dollars. Comparing the two, we find that the "index number" effect is discernible, but not extreme. For the comparison in dollars, the ratio is 1.4 to 1 in favor of the Soviets; in the case of our ruble comparison, it is 1.25 to 1.

So, we believe that there is some difference in the two comparisons, but that it generally supports the kind of figures and the kind of trends that we have been developing through the years.

Admiral Turner. Mr. Chairman, we are running well over my time estimate. I wonder if this next item, which is miscellaneous questions which you submitted, could be placed in the record and we could go on. Of course, if you prefer, we would be glad to discuss them.

Senator Proxmire. Suppose you give us the section on quality control, which I understand follows this, and then we can go ahead with our questions. I think that is important and should not be omitted.

Admiral Turner. All right.

Dr. Stevens. Mr. Chairman, the Soviets clearly feel a good deal of pressure to do a better job of quality control. The approach that they are using is essentially one of brute force. It is an inefficient method that relies upon producing a high output of goods and then simply rejecting a good deal of what is produced.

This is really the only feasible course of action given the labor-intensive approach which they take to their weapons production.

They depend on what we call the Voyenpred system and on a system of fines for faulty production to ensure quality control

for military hardware.

The Voyenpreds are military representatives who are located at the plants who monitor weapons production in all of its phases. They have three major functions: to prevent production bottlenecks by being expeditors for the necessary material inputs; to police the pricing of military products; and finally, to ensure that products sold to the military meet all the quality standards required.

Management is also motivated to enforce quality control because they are potentially liable should the product fail to perform adequately.

This represents their approach to the quality control problem, which is, as I said, pretty much of a brute force tactic.

Admiral Turner. May I move on to Soviet civil defense, sir?

Senator Proxmire. Yes, sir.

Admiral Turner. We have done an extensive review in this area in this past year. It is not completed yet. We are not ready to estimate the magnitude in dollars or rubles of their effort, nor give a comprehensive assessment of its effectiveness. We do believe that the Soviets have been gradually, but steadily, increasing their civil defense effort. Their program is ambitious, it is not apparently a crash effort.

It appears to us that in the late 1960's or early 1970's there was a shift of emphasis, particularly when it came under military direction.

Mr. Chairman, there are three elements to any civil defense program. The first is your ability to protect leadership; the second is your ability to shelter and protect the population in general; the third is to protect some economic capability for a post-attack or post-war recovery.

I would like to discuss each of these briefly in turn. With respect to protecting the leadership in the Soviet Union, we believe the Soviets have a reasonable opportunity, with warning, to protect a large percentage of their key military and civilian leadership.

As far as the overall population is concerned, there are four elements to protecting a population. One is urban shelters, two is evacuation procedures, three is reserve of essential supplies to support the population, and four is some form of indoctrination and training in the necessary procedures.

The Soviets have a shelter program, although we do not know the total number of shelters.

Despite the shelter program we believe the Soviets will still rely heavily on dispersal and evacuation to protect their urban population.

Soviet plans call for the key workers and essential personnel to travel to dispersal sites that are outside the cities, but close enough that they could commute back. Non-essential personnel we expect would be evacuated up to 300 kilometers away.

In this connection, the third point, stocks of supplies, we do feel that they have large stocks of food, water, fuel, and medicine located outside the urban areas. Supply levels are sufficient for minimum subsistence needs for weeks or perhaps months; but they might well face problems in distributing these supplies in the face of a major attack.

Fourth and finally, we see little evidence today of serious efforts at mass indoctrination of the population or in actual exercising of the evacuation procedures.

The third element of civil defense is protecting some portion of the economy. Here the Soviets include dispersal of their plants, hardening measures, and industrial civil defense units, and strategic reserves of essential materials.

The civil defense program calls for locating new industries outside the urban areas, and for increasing the space between buildings within industrial complexes to reduce potential damage.

In point of fact, industrial expansion during the past 15 years has not significantly reduced the overall industrial vulnerability. Heavy industry remains concentrated in large urban areas.

Building patterns in many industries have become more dense rather than more spread out as intended.

Overall, we do not believe that the existing preparations could prevent a general breakdown in the economy in the event of a US retaliatory strike.

In conclusion, we believe the Soviets do not possess a civil defense capability that would enable them to feel that they could with reasonable expectation absorb a retaliatory strike at levels of damage that would be acceptable to them.

Yet, Soviet civil defense is an integral part of their military strategy for the conduct of nuclear war, and the Soviet Union is making more progress and effort in civil defense today than is the United States.

We do not interpret this as meaning that the Soviets are planning to initiate nuclear warfare, but they do appear to be thinking through its consequences should it occur, and their need to plan for survival and post-attack recovery.

Now we are ready to move on to China, sir.

Senator Proxmire. Suppose we do this. I know that the Senators would like to ask questions. China is certainly very important, but the Soviet Union is of such overwhelming significance that unless other Senators object, perhaps we could proceed to questions now.

Would that be all right?

Senator Roth. May I ask how long the China portion would take? I would like to ask some comparison questions about China and the Soviet Union.

Senator Proxmire. How long would you take to review China for us, Admiral?

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Admiral Turner. It would take us about 12 minutes, sir.

Senator Roth. I will go along with the Chairman in whatever he wants.

Senator Proxmire. All right, Admiral, why don't you go ahead with China.

Dr. Stevens. I will run through this very quickly if I can, Senator.

1976 was, of course, a very momentous year for China because of the deaths of both Mao Tse-tung and Chou En-lai, the arrest of Mao's widow and the "gang of four," and the massive earthquakes which really had an impact on the economy in several different ways.

(Slide -- Growth of GNP)

Dr. Stevens. We have made some rough estimates of economic performance in 1976, though it has been very difficult to do because of the small amount of official reporting that we get. Our estimates for 1976 indicate a slight gain in agricultural output and a small decline in industrial production, with the net result that there was no growth in the Gross National Product last year.

There were, as I said, a number of problems. Political factionalism disrupted production in industry and elsewhere. The earthquake in the Peking-Tientsin-Tang-shan area caused enormous loss of life and extreme damage, both in industrial output of such things as coal and in transportation.

(Slide--Per Capita Grain Production)

Dr. Stevens. Agricultural performance was disappointing; grain output was 280-285 million tons, the same as in 1975, and cotton production was down.

(Slide--Grain Imports)

Dr. Stevens. Until late 1976, China drew down its grain reserves to avoid spending hard currency for new grain imports. Peking then accelerated purchases of grain, and you can see that this year China will import a good deal of grain from the Western World.

(Slide--Trends in Foreign Trade)

Dr. Stevens. China's foreign trade fell by about 10 percent in 1976, the first decline since 1968.

As you can see, for the first time since the early 1970s, China moved into a surplus situation in its trade balance.

Trade with Japan, which is China's prime trading partner, was down about 20 percent.

(Slide - US-China-Trade)

Dr. Stevens. US exports to China dropped dramatically in this period, as you can see from this chart, which shows the fluctuations caused by various export programs beginning and ending through the period.

Senator Proxmire. That is really amazing.

Dr. Stevens. This year, 1976, was the first year that US imports of Chinese goods exceeded our exports since 1972 when export controls were lifted.

If I may now move on to the economic prospects for 1977, these are clearly mixed. The Chinese officials regard 1977

as a year of readjustment and are putting high priority on restoring the economic order.

In industry and transportation, sizable gains over last year's poor performance can be expected. Recent official claims have noted month-to-month increases in industrial output and railway performance.

In agriculture, on the other hand, the prospects are not good. A drought in the north China plain has reduced winter wheat production. This could be made up by a good fall harvest, but it has again aggravated the problem of tight supply in grain.

In foreign trade, 1977 will be a year of adjustment with only moderate growth.

A new round of plant purchases will not begin before late this year and may be delayed if the agricultural performance is such as to require them to import additional grain from abroad.

China's new leadership began its term in October with economic issues clearly high on its docket. After a series of national conferences to consider economic problems and prospects, the present leaders have revived the long-term modernization program announced by the late Premier Chou En-lai in 1975, and apparently are using this as the basic blueprint for how they intend to proceed.

Agricultural modernization is clearly going to be given top billing. With cultivable land already under intensive use,

China must increase yields by greater use of modern inputs such as chemical fertilizer and new seed strains.

In industry, Peking will devote more resources to raising the level of technology and restoring balance, particularly in heavy industry. Structural imbalances in the steel sector and capacity shortages in mining must be straightened out. Peking must also pay greater attention to improving efficiency throughout the economy, which will require reforms in planning and management, and a strengthening of worker incentives.

The new leadership is keenly aware of the importance of scientific and technical work to its plans for modernization. It is facing now the problem of restoring an educational system severely weakened by the Cultural Revolution.

China will also look more closely at the modernization of its national defenses. The pace of military modernization has been the subject of considerable debate over the past several months. There are indications that the civilian leadership would prefer to hold back on modernization until some basic economic problems can be taken care of.

There are two particular obstacles that the Chinese face in improving economic performance. The first of these is the inability of the central government to effect real control over provincial and county resource allocations. The second is labor unrest, which has occurred as a result of dissatisfaction with the lack of wage increases over the years.

Neither of these problems is going to be easy to solve. Both constitute difficult problems for the new leadership.

Admiral Turner. Very quickly, on the Chinese defense side, we have a lack of good information on their defense expenditures. We are able to keep a pretty good count on their hardware, not on their manpower and support costs and otherwise. We do believe that they spend 8 to 10 percent of their Gross National Product on their defense. We believe that because of the elementary nature of their economy, this is a far larger drain on their advanced industries, their sophisticated industries, than it is in either the Soviet Union or the United States.

(Slide --- Estimated Military Expenditures - Index)

Admiral Turner. The history of Chinese defense expenditures, as we best estimate them, is a considerable rise, peaking in 1971 and dropping sharply and levelling off to a plateau ever since. We think this reflects a reduced estimate of the probability of war with the Soviet Union after this drop in 1971; continuing intense competition for economic resources; and difficulty simply in developing follow-on military systems that are up to date.

We don't think that this reflects a marked drop in the size of the Chinese armed forces, but rather a slowing in the modernization of them. In short, basic policy today in the defense spheres in China appears to be a priority towards agriculture and industry, with a gradual but reduced level of

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modernization and upgrading of the military forces. In short, they are holding military spending in check and are doing only selective improvements on it, but they are maintaining their overall force levels.

That, sir, completes our prepared presentation.

We are happy to respond to your questions.

Senator Proxmire. Thank you, Admiral.

That concluding remark that you made on the Chinese military suggests to me that it is a very, very limited kind of threat. After all, their Gross National Product is about 10 percent of ours, and if they are spending 8 percent of their Gross National Product in defense, it means a very small military force, at least in terms of modern strike force, as compared to ours, or to that of the Soviet Union.

Admiral Turner. Yes, Sir. They have a very limited nuclear intercontinental strike capability. In fact, they are just bringing on their first weapon that could even reach the United States.

As far as ground warfare is concerned, our only real potential point of contact at this stage or potential would be Korea. I think they do have some potential there with a repeat of the massive human attack.

Senator Proxmire. One of the sections of your excellent testimony which you had to skip over in the interest of time concerned Soviet technology, their technology as compared to ours.

One of the most startling revelations that we had last year when Director Bush came up to testify before us was his argument that Soviet military technology was behind ours. He put it this way. He said that there was no significant area where they were ahead of us and many significant areas where they were behind us.

In the two pages you have which deal with Soviet and US technology comparisons, you indicate some areas where they trail us, such as electronics, computers, design and manufacturing technology incorporated into the Soviet aircraft and missiles. Is the picture still the same as far as technology is concerned, that we are ahead of the Soviet Union in important respects and that they are not ahead of us in any? Is that a fair statement?

Admiral Turner. I would be a little loath to make a categorical statement that they are not ahead of us in any. They are certainly ahead of us in some areas of application.

Senator Proxmire. Such as?

Admiral Turner. In some areas of command, control and communications of military forces I would say they are

ahead of us in application more than in technology; that is, they put more resources into that area.

Senator Proxmire. Can you give us an overall assessment?

Admiral Turner. An overall assessment would be that we are well ahead of them in military technology. With brute force techniques, however, they do achieve about the same end result in many areas that we do with much more sophisticated techniques. For example, they will put multiple computers in a system, each of much less sophistication than the one we put in ours.

Senator Proxmire. It shows a higher cost, but not necessarily a higher effectiveness, right?

Admiral Turner. That's correct.

Senator Proxmire. Are you saying that the USSR defense spending exceeds ours in 1976 on a dollar basis by 30 to 40 percent and if so, I just wonder what that means? What you are saying, as I understand it, is for us to reproduce the Soviet defense establishment, it would cost 30 to 40 percent more than we spend on our own defense.

Is that right?

Admiral Turner. Yes, sir.

Senator Proxmire. However, much of that Soviet defense establishment would be irrelevant for our needs. They have a large number of troops on the Chinese border, for example, right?

Admiral Turner. That's correct.

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Senator Proxmire. They have a problem of suppressing dissent in the satellite countries, so they quarter substantial troops in that area.

Admiral Turner (nods affirmatively.)

Senator Proxmire. Does it allow for their lesser efficiency, their lesser technological development than ours, or not?

Mr. Burton. Sir, actually it is US technology and production that enter into these estimates, so it is what it would cost us to reproduce the Soviet design.

Senator Proxmire. Then there is one other element here. Perhaps I am wrong, but I have heard and I get the impression that the Soviet Union has very much more of a concern with defense, defense against air attack, the civil defense which you mentioned, that they are defense-minded or defensive-minded, as compared with offensive-minded, much more than are we and other countries. Would that not account for some of the difference?

What I am trying to say is in comparing the Soviet Union with us, the relative force, effectiveness, and efficiency of the Soviet Union, we don't have the concern, for example, with a bomber attack that they seem to have. I understand that they have the most heavily defended air space in the world. Of course, that is enormously costly and would account for part of their immense expenditure, would it not?

Admiral Turner. Yes sir. The Soviets have deployed a much more ambitious air defense system than the US.

I think you can look at the history of the Soviet armed forces since World War II and in all categories they began with a quite defensive orientation. I, of course, am most familiar with the naval sphere, and I would say that the origin of their navy was to protect against incursions from the sea towards their homeland.

I think that in all areas in the last decade we see this merging into a much more offensive potential. Whether that is their intent or not, I don't know. But it certainly is not a defensive move to build up their tank inventory and their artillery on the western front of Europe as much as they have. Similarly, with their air force, they are going largely from fighter interceptor defensive aircraft to multipurpose attack and fighter aircraft. Similarly with their navy, they are going from short-range capability to defend their coastal waters to a worldwide demonstrable capability, including even small aircraft carriers.

Senator Proxmire. I only have time for one or two more questions. I have only 2 or 3 minutes left.

Let me ask you this.

This whole presentation has been fascinating, but one of the interesting elements was the one you started off with on which Senator Hatch had some very good questions. This concerns me.

You talked about the Soviet oil production and the effect that that is going to have on the Soviet economy, perhaps even on the Soviet military as time goes on. You do concede uncertainty in some of your facts, including the amount of proved reserves, estimated by you at 30 to 35 billion barrels.

In view of our own uncertainty about U.S. reserves, what is the margin of error in your estimate? Could it be off by a factor of two or more, and if so, isn't it possible that the rest of the analysis is flawed?

Admiral Turner. I hesitate to say how much the estimate of reserves could be off without asking anybody else if he wants to guess about that.

Mr. Diamond. Senator, that is true, but you have to remember the definition of what we mean by "reserves." These are not what is in the ground. These are recoverable reserves and what we consider to be at a reasonable economic cost.

Senator Proxmire. So do you agree that they could be twice as high as is estimated?

Mr. Diamond. That is true. It could be tremendous. For example, in this country we claim 30 to 35 billion barrels of recoverable oil but total reserves may exceed 100 billion barrels. The experts believe that with current technology only about one-third of these reserves are recoverable.

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Admiral Turner. Even if they have twice as many recoverable reserves as we think, in the next decade they cannot turn that into oil on the surface of the earth. Thus we do not think that invalidates the analysis which we have been presenting to you today, sir, because we are saying that in the next decade, the pressures which we tried to demonstrate this morning are going to exist.

Senator Proxmire. Are you saying that you are sure that they will not be able to produce, say 12 million barrels a day in 1985?

Admiral Turner. Yes, sir. That is our prediction, that they cannot even sustain the 10 million that they are doing today.

Senator Proxmire. But they have the reserves in the ground, so why not?

Admiral Turner. Because if they have not made sufficient progress towards developing those reserves, they cannot get it out by 1985, particularly in the inhospitable and remote areas in which they have to work.

Senator Hatch. Admiral, as I see it, at your highest estimate they have 12 million barrels a day. Now we have presently a need in the United States for about 18 million, considering no gain or no particular growth.

They have a lesser industrialized economy than we do. They have what, 50,000 manufacturing facilities in Russia

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as compared with 295,000 in this country. I don't see how they can use 10 to 12 million barrels a day. I am wondering if they are storing that.

Admiral Turner. In 1976 they exported about 3 million b/d. Half went to other Communist countries; half to other areas. That means that they used about 7-1/2 million barrels a day, which is little less than half of ours.

Senator Hatch. I see. That would correspond with the differences in the economies.

You suspect that for them to have any type of growth at all they have to keep energy production going.

Admiral Turner. Yes, sir. That is the record; their economic growth and their energy use have been in parallel all these years.

Senator Hatch. To change the subject, when I first came to the Senate, we were told that they did not have very much of a civil defense system. Now you have told us today that they have a civil defense system, one of such a nature that if we had a retaliatory attack, the majority of their people would survive, and much of their leadership would survive.

Is that correct, or have I misconstrued what you said?

Admiral Turner. Assuming some hours of warning, the majority of their leadership would survive.

I think the ability of their population to survive is very much in doubt. There is considerable uncertainty that they could hope to protect a reasonable percentage of their population at this time.

Senator Hatch. And just as much uncertainty that they could protect their industrial centers.

Admiral Turner. There is very little probability, in my opinion, that they could protect their economic base. They have not followed through on their plans to space and relocate their industry.

Senator Hatch. What about the tensions between China and Russia, on the Manchurian borders, for instance?

Admiral Turner. The tensions there are pretty deep-rooted. The Soviets have indicated a willingness to negotiate, but there is little sign of give on the Chinese side. The Chinese say that the Soviets must evacuate the islands in the Amur River and acknowledge that they were granted to the Soviet Union under an unjust treaty before they will even negotiate on whether the islands belong to one side or the other.

In addition, there is a large island opposite the city of Khabarovsk, which the Soviets would not give up for strategic reasons.

Senator Hatch. Just this past week I read some articles where it was suggested that we are dropping the ball economically

and strategically in not strengthening relationships with China which would bring concomitant pressure on the Soviet Union.

Are you of that same opinion?

Admiral Turner. Senator, you are taking me into the area of policy-making for our government, and as an unbiased, objective purveyor of intelligence, I would rather stay out of that if I may.

Senator Hatch. But it still has a relationship to this area, because our trade, you have indicated, has gone sharply down below what it was just a few years ago. We were at a very high peak and then all of a sudden we have dropped to the point where we import more than we export with regard to the People's Republic of China.

What I am concerned about is this. Should we be fostering a program where we increase our trade with the Peoples' Republic, which would also unsettle the Russians, and is there any way that we can increase our trade since we have had such a drastic fall-out? Is that strictly because their economy has bounced up? Just what are the reasons?

Admiral Turner. I believe that we have seen a deliberate effort on the part of the Chinese to get their overall trade back in balance.

Senator Hatch. To be self-contained?

Admiral Turner. Yes. Although the Chinese have made greater use of foreign trade in recent years to spur economic

development, self-reliance remains their stated policy. For example, the imports of complete plants over the past several years will enable the Chinese to reduce, or at least hold down, imports of such items as steel, fertilizer, and textile fibers in the future.

Senator Hatch. Is there any indication that they are willing to increase trade relations with us so that we can get back to where we export more than we import?

Admiral Turner. I see little indication of that. They will increase trade with the US when it suits their purpose, but Peking's policy has been to limit purchases from the US when alternative supplies are available. The rapid rise of the US to the position of China's second largest trading partner was, of course, the result of large-scale Chinese purchases of agricultural products in years when world supplies were tight and China's traditional suppliers could not meet its needs. For the peak trade years 1973-74 agricultural commodities accounted for more than 80% of US exports to China.* Other Chinese purchases have been items such as Boeing

* Data supplied for the record:

| | Million US dollars | | | | |
|--------------------------|--------------------|------|------|------|------|
| | 1972 | 1973 | 1974 | 1975 | 1976 |
| US Exports to China | 63 | 690 | 819 | 304 | 135 |
| Of which: | | | | | |
| Agricultural commodities | 61 | 578 | 688 | 80 | 0 |
| Other exports | 2 | 112 | 151 | 224 | 135 |

aircraft, fertilizer plants, and oil drilling and exploration equipment where US technology excels. Factors impeding trade include limited US demand for Chinese goods, lack of MFN-status for Chinese exports, US controls on strategic exports, and the absence of direct banking and shipping facilities due to the still unresolved frozen assets/claims problem.

Senator Hatch. I have one other question and that is this. Since coming to the Senate, I have had occasion to talk to some of our military people who are concerned that the Soviets may be developing these special high-technology weapons that your report indicates they have not developed, such as the particle beam weapon, various sensor devices, various forms of monitoring technology, et cetera. Is there any reason for that disparity? Some of these people seem to talk very intelligently about it and I have heard both sides. Some decry everything that others cite.

Admiral Turner. We have analyzed the particle beam weapon in particular in some detail. It is our belief that the component technologies that would be required to build that sort of capability are not advanced enough in the Soviet Union to give them the prospect of being anywhere close to developing such a weapon. Most of the evidence adduced to the contrary is based on the assumption that a particular facility in the Soviet Union is dedicated to this purpose, and additional

assumptions about their state of technology. We think all of these assumptions are questionable. Further, we don't see signs of those efforts required for pulling this together.

Senator Hatch. Are they working on particle beam weapons or something close to it?

Admiral Turner. I cannot either confirm or deny that as I don't have positive evidence that they are not.

Senator Hatch. We really do not know, then.

Admiral Turner. We really do not know.

Senator Hatch. But you do question seriously whether or not they have reached that form of technology at a high state of art?

Admiral Turner. We don't know that they are doing it, but we have fair confidence that they don't have the required technologies at a sufficiently advanced stage yet.

Senator Hatch. I see. Thank you.

Before I leave, Admiral, I want to compliment you and your staff for the excellent presentation we have had today. It has been very enlightening today and I personally appreciate it.

Thank you very much.

Admiral Turner. Thank you, Senator.

Senator Proxmire. Senator Sparkman.

Senator Sparkman. Admiral, I shall be very brief. I want to say that I thought that was a masterful presentation that you gave us today.

Admiral Turner. Thank you, sir.

Senator Sparkman. Of course, we have been dealing with part of that part of the world in the Foreign Relations Committee. I want to say just this, with reference to a question asked by Senator Hatch just before he left. It deals with the confrontation, if we can call it that, between the Soviet Union and the Peoples' Republic of China.

Back in 1973, I believe it was then, I was in China and I had a conference with Chou En-lai, who was still living at that time. I remember quite well, during the discussion he expressed the hope that the United States would maintain its strength in Western Europe, particularly with the NATO nations, as opposed to the Warsaw Pact nations. He said that if we kept them busy there, they could not carry on as well as otherwise on the northern border. Now remember, he made this statement. He said, just think how you would feel if you had an enemy army of a million men on your northern frontier.

I have often thought of that with reference to the relationship between the two countries.

Admiral, I greatly enjoyed your statement. I appreciate it and want to thank you for it.

Admiral Turner. Thank you, sir.

Senator Sparkman. I just don't see how you get all of that information. I am not going to ask you how, of course.

(General laughter.)

Senator Proxmire. Senator Roth.

Senator Roth. Thank you, Mr. Chairman.

I, too, want to congratulate the Director. I think it was a very fine presentation.

There is one question that I have.

As I understand your testimony in the case of China, they are really placing defense as a last priority, they place agriculture and industry ahead of their defense and military needs; whereas in the case of the USSR it is pretty much the opposite in terms of their top priority. The Soviets are placing their consumer needs way down on the list.

Now if that is accurate, it would appear that the imbalance, if we can call it that, between the USSR and China is going to grow. I have heard it said that some people think for that reason the military in China may desire some kind of accommodation with the USSR.

Is there any evidence or any reason that you can see that there may be an effort for rapprochement or accommodation between those two countries?

Admiral Turner. I see no evidence of any current moves in that direction or inclination to move in that direction.

Senator Roth. The Soviet Union, according to your prediction, faces very serious economic problems. I suspect that one of the problems we face on the Hill is to what extent,

if at all, should we provide economic assistance in one form or another. One example that we have worked with in the past is to help them develop their natural oil and gas, particularly in Siberia. If we, say, together with the Japanese join in helping that development, would that substantially change the energy picture as far as the USSR is concerned?

Admiral Turner. Well, the word "substantial" is a problem for me. It certainly is apparent that the Soviets today need help to hold their own, let alone to proceed, and that if they are going to develop new fields in Siberia, they are going to need outside financing as well as outside infusions of technology.

So, while we do not believe that kind of assistance will appreciably change the predictions I have given you between now and the mid-1980s, it certainly could be an important factor in whether they begin to come back up this downward slope that we showed you after the mid-1980s. That kind of help is not likely to start producing oil for probably another decade.

Senator Roth. Do you have any predictions as to what recovery could be under a large scale program, say of 20 or 25 years? Do you have any prediction on the number of barrels a day?

Admiral Turner. I don't think so, but there is no doubt that there is lots of oil out there, right, Doug?

Mr. Diamond. Yes, sir.

There are no predictions. One of our consultants

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feels that unless massive infusions of investment and technology are poured in, not only from the US but also from Western Europe, production may not turn up in the last half of the 1980s or early 1990s.

The required investment effort boggles the mind. For example, in this 1976-80 five year plan, they are putting in 20 million tons of pipe or 24,000 miles of oil and gas pipeline, just in this five year plan. The Alaska pipeline is only 800 miles long. To accomplish this goal, the Soviets would have to lay an Alaskan pipeline every six to eight weeks, under comparable or even more inhospitable conditions. This is an indicator of required effort for investment in the transmission system alone.

So, when you talk about overall magnitude of outlays of investment for capacity to develop and transport oil for 1976-80 beyond, no expert would hazard a guess as to how many billions of dollars of Western help would be required to run production of oil up.

Senator Roth. I believe at one point you said the Soviets may seek assistance from us. Would you be a little more specific about the kind of assistance they might want?

Admiral Turner. I think it is primarily our technology they are after and that they can only get if they have hard currency or credits in hard currency areas;

specifically, we have referred several times to the technology for oil development. Today it is techniques for getting it out of the ground under existing conditions. But as they move into the frozen north more, I think they will be looking to us for all kinds of technology in pipeline development, exploration techniques, and so on.

Senator Roth. Thank you.

I have one last question, Mr. Chairman.

With respect to civil defense, is there any possibility that these efforts might be directed towards protection in a conventional war if they decided they might want to move in Europe? Could these facilities be useful?

The Chinese have warned us that the Soviet Union is going to move in Europe. Could this be the purpose behind it?

Admiral Turner. There is no question that these shelters would be even more effective against a conventional attack.

Senator Roth. Thank you, Mr. Chairman.

Senator Proxmire. I have one question at this point and then I will yield to Senator Javits. I know that he has been waiting very patiently.

Is there any possibility that the civil defense effort is an effort designed not to protect themselves against an attack by us, which as you said would seem to be pretty devastating, but against a nuclear attack from the Chinese?

Admiral Turner. I think that the Soviets have considerable concerns about that, yes, sir.

Senator Proxmire. And it would probably give them that protection against the Chinese pretty effectively, wouldn't it--in view of the fact that they have less megatonnage, less accuracy, less precision, far fewer warheads, less follow-on capacity, and so on?

Admiral Turner. Yes. There is no question that the Chinese do not have the capability today to take out a substantial percentage of the Soviet population or leadership or industry simply for a lack of weapons. So yes, civil defense becomes proportionately more useful under those circumstances.

Senator Proxmire. Thank you.

Senator Javits. I have two questions and I will ask them separately. You spoke of per capita consumption diminishing to a 2 percent annual growth rate for the individual in the Soviet Union. We constantly hear that every once in a while they have to divert from their fundamental concentration of roughly 13 percent of the GNP on military weaponry, et cetera, in order to do something for the civilian sector. What causes them to do that? There is no public opinion, there are no elections, there is no press, there is no radio, no television. Why do they have any need to respond at all to the individual?

I have been to the Soviet Union on a number of occasions. The people seem to be fairly well shod. I am told that they eat adequately--after all, you can live on pretty little compared to the way we operate around here.

What is the pressure on them to do anything for the consumer?

Admiral Turner. Let me ask some of the Soviet experts.

Doug?

Mr. Diamond. Senator, there are really three types of pressures. As we measure Soviet per capita consumption, it is roughly one-third of the US, perhaps half that of Western Europe, and 70 percent of that of Hungary and Poland.

Secondly, in particular areas, such as quality of diet, one out of every two calories they consume is still from starchy staples, such as grains and potatoes. Their starchy-staple ratio is the highest of any advanced industrial country in the world. Meat consumption is 40 percent of ours and 70 percent of that of Poland and Hungary. The queues for certain kinds of goods, especially selected high quality foods, are long. Perhaps you may have seen them.

We have had reporting over the last year of considerably more discontent in the mid 1970s than there was at the end of the 1960s. This does not show in rioting,

as it did in 1962, when Khrushchev raised prices on some foods, but it may show up in a lower level of productivity, for example.

Senator Proxmire. Did you say a lower level of productivity?

Mr. Diamond. A lower rate of growth in labor productivity, and that includes absenteeism.

Thirdly, it is widely believed that Russians are more stoic than their counterparts in Eastern Europe. The Poles will take to the streets more quickly. But, when Brezhnev and his colleagues observe what happened in Eastern Europe over the last 20 years, especially widespread demonstrations in Poland in 1970 and 1976, this causes them concern.

Because of these kinds of pressures we judge that the leadership will feel that some growth in per capita consumption is required although they will be unable to prevent a slowdown.

Senator Javits. For me, the most important part of what you have said has been the figures, that they live only 70 percent as well as the Hungarians and the Poles, and 50 percent as well as the West Europeans.

I think that is all extremely important. I think that we, in the Congress, should be very interested in to what extent the public is manifesting its will somehow, even in a country which is held in such an iron grip as this one. I gather, as a necessary corollary, that as

far as the military people are concerned, they eat all right and sleep all right if they are not subjected to any of these problems. Is that correct?

Mr. Diamond. Yes, sir. They get their daily rations.

Senator Javits. The Russian soldier in my father's day was very expendable. He ate almost anything, he slept anywhere, and he was literally a slave. But that is no longer true.

Admiral Turner. But his pay is not good if he is a conscript, and you are aware, sir, of the signs of discontent we have had, such as the pilot who flew the aircraft to Japan.

I do not want to portray that as a major problem at this point, but at least it is interesting as an indicator.

Senator Javits. On the positive side you are able to testify that they are taken pretty good care of, isn't that right?

Mr. Diamond. That is right, sir, in a comparative sense, inside their own economy, but not by our standards.

Senator Javits. I understand that, of course. I just told you about Russian soldiers from my personal experience. I know from whence they come.

But I was interested in where they are now.

The other thing that interests me is your statement, which I want you to confirm, that the USSR will experience a hard currency squeeze in the 1980s. This means that

they may have to turn to us even more for credits and technology.

This is a critical point for this reason. The USSR and the Eastern Bloc owes Western Europe about \$30 billion right now, and the United States is only in for about \$5 billion, that is, United States banks. As a matter of fact, it is only about \$1.5 billion to the USSR.

There is a big policy question which you may not even want to answer at this time. You may wish to think about it. There are certain factual questions which relate to this question of policy.

Should we continue this policy of relatively easy access to the credit markets of the world by the USSR? Or, should we turn against it in a very affirmative and decided way and use that, by linkage, with Angola, the Middle East, or any other place?

The same is true of technology over which we have surrendered control.

On the other hand, it is said that the Russian hardness on the Jewish emigration question was attributable to the limitation of \$300 million in Export-Import Bank lending, which is meaningless to them now, except as a matter of respectability, which was imposed by the Congress.

This to me is the critical area, these economic questions. The question I would like to ask you Admiral, is what facts do you have to cast light on this question.

This is what I would like to get at. This is to me the basic question: what leverage is there in the economic and technology relations between the United States and the Soviet Union that if, as a matter of policy, we wish to employ--and that is not your business, it is our business and the President's--we could? We have to know what are our capabilities. And I ask you, are we abreast of that?

Admiral Turner. My best response to that at the moment, Senator Javits, is that I feel a great responsibility to provide you the factual information that would help you approach that decision. I feel that one of the most significant things about this long-term forecast of the Soviet economy that we have presented today is that it highlights that the Soviets have a limited number of options for what we think is a serious problem.

Senator Proxmire. Senator McClure.

Senator McClure. Thank you, Mr. Chairman. First let me apologize for coming in late. There is nothing more important to me than this, unfortunately except for this particular morning.

I have only two questions and perhaps you have already touched on these.

Do you note any diversion within the Soviet economy away from military production and toward energy production? With reference to all of the demands on pipeline building and the rest of it, I have not seen any diversion away from military production in order to meet that energy need.

Admiral Turner. No, sir, we do not either.

Senator McClure. It would seem to me, then, that the corollary is that if they have this tremendous problem confronting them, then military preparedness has all of the priority which we have attributed to them in that area in the past.

Admiral Turner. That is our view, though we don't know how they will weigh that if and when this prediction really dawns upon them.

Senator McClure. So we don't know for sure whether we can supply the technology or the economics for that energy production. It would certainly reduce the pressure for diversion of those things from energy production, but it might not result in any difference except increased energy capacity?

Admiral Turner. Yes, sir.

Senator McClure. The other question is in regard to the point, a very cogent point, that Senator Javits made about the relative standard of living of the Russian people.

If they are only at 70 percent of the Eastern European countries and at 50 percent of Western Europe, that is significant, but it is significant only if they conceive it in that way. If they are nevertheless moving up, if their standard of living is rising each year and they feel relatively better off this year than last year and they don't know that they are worse off than someone else, that would have little significance, wouldn't it?

Admiral Turner. Yes. I believe that what you are saying is certainly the right perception; that what the Soviet consumer sees of his relative position is probably more dominant in his thought than any hypothetical comparison with outside. However, I don't think we can discount outside influence completely because of the increasing amount of communication in the world today. Even the Soviets are travelling more than they used to.

Senator McClure. That would than indicate that increased contacts between countries might exacerbate that domestic problem for them?

Admiral Turner. It certainly would have some input.

Senator McClure. Thank you very much.

I have no further questions.

Senator Proxmire. Admiral, do you have any preliminary estimates of Soviet grain production this year, what their targets are and what they are likely to achieve?

Mr. Diamond. The target is 213.3 million tons this year.

Senator Proxmire. Just what does that mean? How much of a dropoff is the expectation?

Mr. Diamond. Last year's production was 224 million metric tons and that was a record. Moscow would probably consider anything over 200 million to be quite satisfactory.

The Department of Agriculture has a preliminary estimate of 225 million tons. We agree with that estimate, although it must be stressed that it is very early in the season. Much of the grain remains unripened, very little has been harvested. Right now, however, growing conditions are very good.

Senator Proxmire. An article in "The Washington Post" about six weeks ago reports that the figures for meat production for the Soviet Union are lower than for the same period last year and that the planned industrialization of agriculture is not likely to succeed unless the resources allocated to the military are reduced.

Can you comment on that?

Mr. Diamond. Meat production in the first quarter of this year remained below the first quarter of 1976. It is just starting to turn up as the result of a sharp upturn in use of feedgrains from the record 1976 crop.

Senator Proxmire. Well, is there a connection--have they reduced in any way their military expenditures?

Mr. Diamond. Oh, absolutely not. There is no direct relationship.

Senator Proxmire. Are they using troops in the fields at all?

Mr. Diamond. Yes.

Senator Proxmire. More than usual?

Mr. Diamond. We don't have a measure.

Senator Proxmire. Admiral, I would like to ask you about some criticisms of the CIA. I am sure that you remember the controversy over the so-called Team B review of last year's National Intelligence Estimate of Soviet strategic capabilities.

At that time I made a public comment that criticism of the intelligence process was healthy and that conflicting ideas made good estimates. At the same time, I was highly critical of having one ideological group with one viewpoint represented as the only outside critical review body.

Do you intend to have intelligence estimates reviewed by any outside panels, and if so, will you insure that a wide body of opinion is represented?

Admiral Turner. Yes, sir. I am moving toward that.

Senator Proxmire. It was a view that was very good and intelligent. I think that General Keegan is a man of

great ability and I admire his ability. But he represents a particular viewpoint, and the other viewpoint, which it might be also wholesome and healthy to have, did not seem to be represented.

Admiral Turner. I think an ideologically structured Team A-Team B thing is not a normally good idea. I would not reject it entirely, but I think it is something upon which I would look with suspicion.

I think Teams A and Teams B can be good. My first hope is to put into the process that we have as a standard matter, enough divergent opinions that we do not have to go out and get Teams A and Teams B. I would hope that we have that interplay right within our organization, possibly by bringing in outsiders on an ad hoc basis, if particular skills or viewpoints are needed.

Senator Proxmire. I can understand that and I think that makes for a neater operation. But at the same time I would think that some people outside, who are not subject to the discipline or the inhibitions that any person in the organization is likely to be, would be freer to be more aggressive and more critical in suggesting areas where the CIA may be off base.

Admiral Turner. I think that is basically true. I am planning to create a group of consultants. We will look at a particular estimate that is being done, such as this one

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on strategic forces, and we will call from that group the right mix of people to join in the estimate. This would not be on a full-time basis, but we would ask them to come from the beginning of the exercise and to follow it right through and to critique as we go along.

Senator Proxmire. The public debate over the Team B episode seemed to indicate that the so-called hard-liners won the day and forced the CIA to re-evaluate its opinions about Soviet military strength.

Did that in fact happen?

Admiral Turner. I really have not dug into that, Senator. But the CIA people assure me that that is not the case.

In addition, the story got vastly distorted in the press.

Senator Proxmire. As I remember the articles--which I thought were real shockers--in the "New York Times," there were 25 specific points covering a wide spectrum of differences of opinion voiced by General Keegan. I wrote a letter to the head of the Joint Chiefs of Staff asking him to comment on each one. But it was not just a narrow area, at least not according to General Keegan's criticisms. It was rather broad.

At any rate, General Keegan has publicly taken the CIA to task for a variety of mistakes, ranging from myopia to deliberately hiding the facts from the policy-makers. For example, he suggested that: the CIA has considerably

underestimated the Soviet threat; the CIA contrived to reduce the estimated range of the Backfire bomber in order to salvage the SALT II accords; the CIA has become politicized; the intelligence community has been wrong about parity and wrong about virtually every great Soviet scientific and military advance since World War II.

Let's take those in order.

Has the CIA consistently underestimated the Soviet threat?

Admiral Turner. I don't believe so, no.

Senator Proxmire. Has the CIA contrived to reduce the estimated range of the Backfire bomber in order to salvage the SALT II accords?

Admiral Turner. No.

Senator Proxmire. What about the argument of politicization of the CIA? What is your answer to that?

Admiral Turner. I won't speak for the past, but I will defend to the death that we are not politicized today, sir. I feel that my responsibility is to stand clear of the policy-makers and to give the President, the Senate, and the House objective, unbiased intelligence to the best that a human being can do that.

Senator Proxmire. What about the charge that the intelligence community--not just the CIA, but the whole

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intelligence community--has been wrong about parity and wrong about virtually every great Soviet scientific and military advance since World War II? What is your answer to that?

Admiral Turner. I think that that is an incorrect generalization. I cannot imagine that the intelligence community, or the CIA, has been wrong on every advance that the Soviets have made.

Senator Proxmire. Exactly the opposite has been my impression. Of course the CIA has made mistakes; what institution does not make mistakes? But at the same time, according to hindsight, it would seem that you have been more accurate than the other agencies have been.

Admiral Turner. I believe we have been generally accurate and objective.

As a military officer, I have always valued the CIA estimates.

Senator Proxmire. Last year the JCS Chairman, General Brown, said that our strategic targeting plans, "to take Soviet civil defense into account," instead of targeting population per se, are now targeting primarily Soviet military targets, command posts, and military-related industry.

If that is the case, do we need to be concerned about Soviet population protection measures, and if so, why?

Admiral Turner. To the extent that one considers that the Soviet Union's decision on whether or not to initiate strategic warfare takes into account what their population loss will be.

Senator Proxmire. So this may be a tipoff as to whether or not they are interested in a first strike?

Admiral Turner. Yes, sir.

Senator Proxmire. But obviously, if we are not shooting to kill people but to knock out military targets, command posts and military-related industries so they would have no military capability, it is irrelevant whether they have shelters or evacuation plans, isn't it?

Admiral Turner. Well, sir, strategic nuclear warfare would not be so neat that you would get only the factories.

Senator Proxmire. Of course. That would not be our principal objective.

Can you give us figures for total Soviet arms exports during the past five years?

Admiral Turner. Yes, sir, I am sure we can. Can't we?

Mr. Diamond. Yes, sir.

Senator Proxmire. Would you get that to us for the record?

Admiral Turner. We would be pleased to do so, Senator Proxmire.

COMMITTEE INSERT

Soviet Military Deliveries to the Third World
1972-1976

| | Million US\$ | | | | |
|---------------|--------------|-------|-------|-------|-------|
| | 1972 | 1973 | 1974 | 1975 | 1976 |
| Total | 1,205 | 3,010 | 2,250 | 1,685 | 2,190 |
| Africa | 55 | 75 | 235 | 600 | 1,070 |
| Latin America | .. | 10 | 25 | 55 | 80 |
| Near East | 970 | 2,655 | 1,785 | 850 | 830 |
| South Asia | 180 | 270 | 205 | 180 | 210 |

This table reflects a substantial upward revision of the dollar value of Soviet arms exports and agreements in 1972-75 made possible by new information on Soviet prices for major items of equipment.

Senator Proxmire. What is the confidence level of margin of error for the figures in that area? Are the estimates reliable to within 10 percent, or to a factor of two or three--in the Soviet arms exports?

Mr. Diamond. Yes, sir. We will make that a part of the record, too, Senator. I cannot answer that right now.

Senator Proxmire. All right.

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Soviet delivery values are considered to be reliable within 20 percent. In fact, they should be considered

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a minimum figure; undetected shipments of weapons systems and related equipment and unknown additional price increases could raise the total values by as much as 20 percent.

Senator Proxmire. Does the latest information suggest that at the present time they are exporting more. What does your most recent data indicate?

Mr. Diamond. I think the facts are that it has levelled off. There is a change in the mix, a change in the composition.

Admiral Turner. There is another point that I have asked to have studied very carefully, Senator, and that is the difference between aid agreements and aid deliveries. Generally speaking; their deliveries are considerably behind their commitments.

Senator Proxmire. Do the estimates include spare parts, military construction, supporting equipment, and supporting services, as well as weapons?

Admiral Turner. Let me check on that, Senator, and answer later if I may.

COMMITTEE INSERT

The data on Soviet military deliveries include military hardware (land armaments, aircraft, missile systems, and naval boats); support equipment such as radar, communications

gear, and vehicles; and an estimated allowance to cover ammunition, spare parts, and unidentifiable support items that normally are received by military forces. Excluded are the costs of military construction, training, technical assistance, and supply operations. While this aspect of the Soviet program is relatively small, it could increase delivery levels by 10-15 percent annually.

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Senator Proxmire. Would you agree that Soviet weapons possess less sustainability and reliability than U.S. weapons? For example, is it correct that Soviet logistics are not too good, that they do not have good turn-around capabilities, that they have a kind of throw-away philosophy with regard to many of their combat units and weapons?

Admiral Turner. I am reluctant to go quite that far. There are lots of elements to logistics. In terms of quantity I think there is evidence in Europe, for instance, that Soviet logistics are not bad, particularly in the Warsaw Pact arena.

Senator Proxmire. What about reliability?

Admiral Turner. Soviet equipment tends to be more simplistic in design than is ours, but it is generally reliable for the purpose for which it is intended.

Senator Proxmire. How about turn-around capabilities?

Admiral Turner. By turn-around, do you mean if it is broken down, can they repair it and bring it back again?

Senator Proxmire. That's right.

Admiral Turner. I don't really have a specific opinion on that. I will try to see what we can give you.

Sayre, did you want to say something?

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Dr. Stevens. Well, as the Director mentioned, their design is often focused on simplicity.

Senator Proxmire. That should be helpful to them.

Dr. Stevens. Yes, indeed. It often is. The very lack of sophistication in Soviet equipment makes many items easy to repair by relatively unskilled personnel.

Senator Proxmire. Would you agree that due to the lack of precision engineering and quality control in their defense production that there is a likelihood that many of their weapons will not fire? Do they have a serious reliability problem in that sense?

Admiral Turner. I would not be willing to agree with that right off hand, Senator. Their equipment is in many cases more elementary than ours, but it usually does the job.

Senator Proxmire. Have analyses of Soviet weapons such as the MIG-25 disclosed problems of sustainability or reliability, or any other problems concerning the quality of production?

Admiral Turner. Sayre?

Dr. Stevens. The people who have looked at that equipment feel that if the design were taken one step further and a production engineering job were done on it, it would

be possible to make it more effective and cheaper to produce than is now the case. The emphasis now is often on ease of production and the use of interchangeable parts. The ability to perform the design mission is never compromised, however.

Admiral Turner. Overall, Senator, I have had the impression over the years that the Soviets could not maintain their equipment in as high standards of year-round reliability as can we; but that if they knew when war was going to start, they could peak at a very high level of readiness and reliability.

Senator Proxmire. Did the analysis of the MIG-25 show it to be less technologically advanced and more expensive than we had thought it was?

Admiral Turner. I will ask Dr. Stevens to supplement my thoughts on this because he has been in on this in greater detail, I am sure. My reaction to your question is a qualified yes. That is, the internals of the airplane were not as sophisticated as they would have been had we designed the aircraft, but the overall capability is there.

Sayre?

Dr. Stevens. That is right. It is a design choice.

Senator Proxmire. That would increase its cost, wouldn't it? My question was two-fold. First, it went

to the effectiveness of the weapon, of the MIG-25 and the technological advancement of the MIG-25; second, it went to the cost.

You wouldn't say that it cost more, or that it probably performed reasonably well because of the redundancy they have built in at considerable cost, would you?

Dr. Stevens. That is right. The use, for example, of tubes in the electronics of that aircraft may have surprised some people. The use of integrated circuits, of solid state stuff, would produce more reliable electronics, and probably cheaper electronics--if that were the only comparison to be made.

Senator Proxmire. Do you mean that they are still using vacuum tube technology?

Dr. Stevens. There was vacuum tube technology in the MIG-25.

Admiral Turner. But there were other things, such as steel, in it, too, right?

Dr. Stevens. Right, stainless steel instead of titanium.

Admiral Turner. Of course, working titanium is frightfully more expensive, but it gives you a real payoff in performance. This is true today, so you can imagine the differences in cost when the MIG-25 was designed--1961-1963.

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Senator Proxmire. I have only a few questions on China.

To what extent was the poor performance in China due to earthquakes and other natural disasters, and would there have been growth but for the natural disasters?

Admiral Turner. Would you tackle that one, Mike?

Mr. Field. Poor performance in China last year was due both to one-time factors and to longer-run ones. The earthquake was certainly one of the most serious in the last century. It ranks with the great Tokyo earthquake of 1927. The loss of life was very severe, and it was in a highly industrialized area in North China. The earthquake alone might have taken 1 to 2 percentage points off the rate of industrial growth.

A second factor in the low rate of growth was the political disruption connected with the deaths of Chou and Mao and with the throwing out of Mao's widow and the rest of the "gang of four." When we look at the output by province--those for which we have some information--we see a definite correlation between the degree of political disruption and the economic performance. This is a second reason for the poor performance.

Then there are long-run factors. Problems in the allocation of investment over the last five to ten years resulted in bottlenecks. The whole extractive industry is

underdeveloped. For example, the demand for nonferrous metals for which they have ores is higher than their ability to produce. So they have had to import, to spend hard currency to import nonferrous metals.

In the iron and steel industry, emphasis has been too much on the crude steel capacity and not enough on the iron ore extraction or rolling. So, these problems in the allocation of investment have created bottlenecks.

The last factor I would say that is a long-run factor is productivity. There has been very little improvement in the wages or the standard of living for the industrial labor force. In times of political disruption, when the Chinese workers have had a chance to express their opinions, they have demanded higher wages. This dissatisfaction with wages, of course, gets translated into poor morale and low productivity.

So, the poor performance is therefore a combination of the earthquake and the political disruption that are one-time, short-term factors, and then of various underlying problems, such as allocation of investment and problems of handling incentives.

Senator Proxmire. Thank you very much.

It would seem that the Chinese represent a very, very powerful force on the continent around China, particularly

in Korea and in Vietnam and other parts of the Asian land mass, but that they are of virtually no military significance elsewhere. That is just my instinct in view of their size and in view of the kind of force that they have.

You conclude that the Chinese rely on copies of Soviet weapons developed in the 1950's. Would you summarize to what extent Chinese aircraft, missiles, ships, and ground equipment are basically copies of Soviet designs of the 1950's.

Admiral Turner. They are very largely copies of those.

Senator Proxmire. They are about 20 years behind the Soviet Union, let alone ourselves, technologically, isn't that so?

Admiral Turner. Yes, I would say 15 to 20 years.

Dr. Stevens. They have, for example, built a fighter aircraft, a Chinese version of the MIG-21, which is in very limited production.

Senator Proxmire. When was the MIG-21 first built in the Soviet Union? Was it in the 1950's?

Dr. Stevens. It was the late 1950's.

Senator Proxmire. And China's MIG-21 is in only limited production? It is evidently not a great success.

Dr. Stevens. That's right.

On the other hand, they apparently have built a nuclear submarine and they are capable of production advanced radars.

But in general, when it comes to aircraft, ships, and so on, what they have done is taken the equipment that the Soviets gave them before the break and improved upon it. But it is equipment of older Soviet design.

Admiral Turner. But they are developing their own strategic rocket force, their own intercontinental missile force. They are doing that on their own.

Senator Proxmire. Admiral and gentlemen, thank you all very, very much. I want to echo what other members of this committee have said and I want to emphasize it. You have done a superlative job. This has been a very, very fine briefing and I am most impressed. We would appreciate it if you could sanitize as much of this record as possible and make as much as you can available in two or three weeks. I recognize that you cannot do it all, but we would appreciate your doing as much as you can.

Admiral Turner. We would be happy to do so.

Senator Proxmire. Thank you very much.

This committee will stand adjourned.

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